

Title (en)  
VARIABLE POWER OPTICAL ASSEMBLY, OPTICAL DEVICE, AND VARIABLE POWER OPTICAL ASSEMBLY FABRICATION METHOD

Title (de)  
OPTISCHE ANORDNUNG MIT VARIABLER LEISTUNG, OPTISCHE VORRICHTUNG UND VERFAHREN ZUR HERSTELLUNG DER OPTISCHEN ANORDNUNG MIT VARIABLER LEISTUNG

Title (fr)  
ENSEMBLE OPTIQUE À PUISSANCE VARIABLE, DISPOSITIF OPTIQUE, ET PROCÉDÉ DE FABRICATION D'UN ENSEMBLE OPTIQUE À PUISSANCE VARIABLE

Publication  
**EP 2921897 A1 20150923 (EN)**

Application  
**EP 13854627 A 20131029**

Priority

- JP 2012250252 A 20121114
- JP 2012250253 A 20121114
- JP 2013079241 W 20131029

Abstract (en)  
Comprising, in order from an object side: a first lens group G1 having positive refractive power; a second lens group G2 having negative refractive power; a third lens group G3 having positive refractive power; a fourth lens group G4; a fifth lens group G5; and a sixth lens group G6; upon zooming from a wide-angle end state to a telephoto end state, a distance between the first lens group G1 and the second lens group G2, a distance between the second lens group G2 and the third lens group G3, a distance between the third lens group G3 and the fourth lens group G4, a distance between the fourth lens group G4 and the fifth lens group G5, and the distance between the fifth lens group G5 and a sixth lens group G6 being varied; and a predetermined conditional expression being satisfied, thereby providing a variable magnification optical system which has a high variable magnification ratio, is compact in size and has high optical performance, an optical apparatus, and a method for manufacturing the variable magnification optical system.

IPC 8 full level  
**G02B 15/20** (2006.01); **G02B 13/18** (2006.01); **G03B 5/00** (2006.01)

CPC (source: CN EP US)  
**G02B 15/14** (2013.01 - US); **G02B 15/1461** (2019.07 - CN EP US); **G02B 27/646** (2013.01 - CN EP US); **Y10T 29/4984** (2015.01 - EP US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**US 2015234162 A1 20150820**; **US 9983391 B2 20180529**; CN 104769476 A 20150708; CN 104769476 B 20171222; CN 107884917 A 20180406; CN 107884917 B 20200915; EP 2921897 A1 20150923; EP 2921897 A4 20161012; US 2018252902 A1 20180906; WO 2014077120 A1 20140522

DOCDB simple family (application)  
**US 201514700631 A 20150430**; CN 201380057471 A 20131029; CN 201711159252 A 20131029; EP 13854627 A 20131029; JP 2013079241 W 20131029; US 201815972004 A 20180504